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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/577,367	03/22/2007	Mario Pagliaro	4161-16	4967
23117 7590 03/22/2010 NIXON & VANDERHYE, PC 901 NORTH GLEBE ROAD, 11TH FLOOR ARLINGTON, VA 22203				
EXAMINER				
MOORE, MARGARET G				
ART UNIT		PAPER NUMBER		
1796				
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/577,367

Applicant(s)

PAGLIARO ET AL.

Examiner

Margaret G. Moore

Art Unit

1796

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 26 to 47 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 26 to 47 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/CD)
Paper No(s)/Mail Date 4/28/06
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date: ____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: ____

1. Claim 27 is objected to because of the following informalities: The work "alkoxides" is a typographical error. Appropriate correction is required.
2. Claims 28 to 30 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claim 28 is not considered to be further limiting of claim 25 since claims 26 and 27 both require a fluorinated organosilane while claim 28 allows for a fluorinated silica alkoxide or a fluorinated organosilane. The inclusion of a fluorinated silica alkoxide in claim 28 makes this claim broader than that upon which it depends.
3. Claims 28, 30, 31, 34, 42, 45, 46 and 47 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 28, the term "fluorinated silica alkoxide" is indefinite as this is not a term that is commonly used in the art. It is unclear what is meant by this.

In claim 34, it is unclear if this claim is limiting the cosolvent to MeOH or not. It is also unclear what weight to give the phrase "in particular".

In claim 42, it is unclear what is embraced by "a few bars". Also it is unclear what weight to give the phrase "in the neighborhood of".
4. Applicant is advised that should claim 35 be found allowable, claim 44 will be objected to under 37 CFR 1.75 as being a substantial duplicate thereof. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

5. Claims 36 to 39 provides for the use of a sol-gel material, but, since the claim does not set forth any steps involved in the method/process, it is unclear what method/process applicant is intending to encompass. A claim is indefinite where it merely recites a use without any active, positive steps delimiting how this use is actually practiced.

Claims 36 to 39 are rejected under 35 U.S.C. 101 because the claimed recitation of a use, without setting forth any steps involved in the process, results in an improper definition of a process, i.e., results in a claim which is not a proper process claim under 35 U.S.C. 101. See for example *Ex parte Dunki*, 153 USPQ 678 (Bd.App. 1967) and *Clinical Products, Ltd. v. Brenner*, 255 F. Supp. 131, 149 USPQ 475 (D.D.C. 1966).

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 26 to 47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Koya et al. in view of Ciriminna et al.

Koya et al. teach mesoporous molecular sieves that are produced by the sol-gel polymerization of various silanes. The sieves are the sol gel reaction product of a silane having a hydrocarbon group (including organfluoro groups) and a metal oxide precursor. See the bottom of column 1, lines 55 and on, as well as column 2, lines 60 and on, and column 3, lines 61 and on.

As can be seen from the disclosure on column 4, lines 55 and, these sieves can be used to form catalysts having an oxidation function. More specifically they can include a metal component by an impregnation method. See also the column 13, lines 45 and on.

Ciriminna et al. teach a catalyst prepared by a sol-gel composition in which a tetramethoxysilane and a methyltrimethoxysilane are reacted in the presence of TPAP,

methanol and water. See for instance the Results and Discussion on 1262. This differs from that claimed in that the sol-gel does not contain a fluorinated organosilane as claimed. The catalyst therein is used to oxidize alcohols to carbonyls.

Koya et al. teach sol-gels of tetramethoxysilanes and methyltrimethoxysilanes, reacted in the presence of water and alcohol. See for instance Example 2. These are comparable to the sol-gels prepared in Ciriminna et al. Koya et al. also teach sol-gels such as claimed. Note that Example 12 is specifically referred to as providing water repellency.

Motivated by the fact that the molecular sieves in Koya et al. are useful as basis for oxidation catalysts and that Koya et al. teach the same sol-gel components as found in the oxidation catalysts of Ciriminna et al., one having ordinary skill in the art would have been motivated to include a TPAP oxidation catalyst in the sol-gel of Koya et al. to form an oxidation catalyst. Motivation comes from the teachings in Koya et al., suggesting the use thereof as an oxidation catalyst and the various benefits of sol-gel catalysts prepared by the method therein rather than other methods. In addition, since Koya et al. use the sieves prepared in Example 2 and Example 12 in a comparable manner, with the expectation that sieve of Example 12 would have better water repellence (i.e. better hydrophobicity), the skilled artisan would have been motivated to form a sol-gel from an organofluorosilane and a non-fluorinated in the presence of TPAP with the expectation of obtaining predictable results. In this manner the claimed sol-gel process is rendered obvious.

Adjusting the amount of water and alcohol in the process of Koya et al. would have been within routine optimization, rendering obvious the limitation of claim 34.

For claims 40 to 43, note that Ciriminna et al. teach that the oxidation is carried out in the presence of supercritical carbon dioxide.

8. Claims 26 to 47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ciriminna et al. in view of Koya et al.

The teachings of Koya et al. and Ciriminna et al. are noted above. The Examiner notes that Koya et al. use methyltrimethoxysilane and trifluoropropyl trimethoxysilane in a comparable manner to obtain hydrophobic groups on the sol gel catalyst.

It is prima facie obvious to substitute equivalents, motivated by the reasonable expectation that the respective species will behave in a comparable manner or give comparable results in comparable circumstances. The express suggestion to substitute one equivalent for another need not be present to render the substitution obvious.

Thus one having ordinary skill in the art would have been motivated by the implied functional equivalence, as found in Koya et al., to include a trifluoropropyl trimethoxysilane organo functional silane in the ormosil of Ciriminna et al. with an expectation of obtaining a predictable and comparable final product.

Please see Table 1 which teaches the ratios of claim 34.

9. Claims 26 to 35, 44 to 47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Koya et al. in view of Pagliaro et al.

Koya et al. teach mesoporous molecular sieves that are produced by the sol-gel polymerization of various silanes. The sieves are the sol gel reaction product of a silane having a hydrocarbon group (including organfluoro groups) and a metal oxide precursor. See the bottom of column 1, lines 55 and on, as well as column 2, lines 60 and on, and column 3, lines 61 and on.

As can be seen from the disclosure on column 4, lines 55 and, these sieves can be used to form catalysts having an oxidation function. More specifically they can include a metal component by an impregnation method. See also the column 13, lines 45 and on.

Pagliaro et al. teach a catalyst prepared by a sol-gel composition in which a tetramethoxysilane and a methyltrimethoxysilane are reacted in the presence of TPAP, methanol and water. See for instance the left hand column on page 4512. This differs from that claimed in that the sol-gel does not contain a fluorinated organosilane as claimed. The catalyst therein is used to oxidize alcohols to carbonyls.

Koya et al. teach sol gels of tetramethoxysilanes and methyltrimethoxysilanes, reacted in the presence of water and alcohol. See for instance Example 2. These are comparable to the sol-gels prepared in Pagliaro et al. Koya et al. also teach sol-gels such as claimed. Note that Example 12 is specifically referred to as providing water repellency.

Motivated by the fact that the molecular sieves in Koya et al. are useful as basis for oxidation catalysts and that Koya et al. teach the same sol-gel components as found in the oxidation catalysts of Pagliaro et al., one having ordinary skill in the art would have been motivated to include a TPAP oxidation catalyst in the sol-gel of Koya et al. to form an oxidation catalyst. Motivation comes from the teachings in Koya et al., suggesting the use thereof as an oxidation catalyst and the various benefits of sol-gel catalysts prepared by the method therein rather than other methods. In addition, since Koya et al. use the sieves prepared in Example 2 and Example 12 in a comparable manner, with the expectation that sieve of Example 12 would have better water repellence (i.e. better hydrophobicity), the skilled artisan would have been motivated to form a sol-gel from an organofluorosilane and a non-fluorinated in the presence of TPAP with the expectation of obtaining predictable results. In this manner the claimed sol-gel process is rendered obvious.

Adjusting the amount of water and alcohol in the process of Koya et al. would have been within routine optimization, rendering obvious the limitation of claim 34.

10. Claims 26 to 35, 44 to 47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pagliaro et al. in view of Koya et al.

The teachings of Koya et al. and Pagliaro et al. are noted above. The Examiner notes that Koya et al. use methyltrimethoxysilane and trifluoropropyl trimethoxysilane in a comparable manner to obtain hydrophobic groups on the sol gel catalyst.

It is prima facie obvious to substitute equivalents, motivated by the reasonable expectation that the respective species will behave in a comparable manner or give

comparable results in comparable circumstances. The express suggestion to substitute one equivalent for another need not be present to render the substitution obvious.

Thus one having ordinary skill in the art would have been motivated by the implied functional equivalence, as found in Koya et al., to include a trifluoropropyl trimethoxysilane organo functional silane in the ormosil of Pagliaro et al. with an expectation of obtaining a predictable and comparable final product.

Please see Table 1 which teaches the ratios of claim 34.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Margaret G. Moore whose telephone number is 571-272-1090. The examiner can normally be reached on Monday and Wednesday to Friday, 10am to 4pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Seidleck can be reached on 571-272-1078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

/Margaret G. Moore/
Primary Examiner, Art Unit 1796

mgm
3/16/10